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Southern Flight

(Formerly *SOUTHWESTERN* AVIATION)

The Complete Monthly Digest of Aeronautics in The South and Southwest

JUNE

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Airport Reputations

THERE is no greater satisfaction to the private owner than the satisfaction that comes from flying into an airport where proper servicing and attention is given his equipment, where airport personnel go out of their way to make the customer's stay pleasant yet business-like, and where the little "extra" services make the visiting pilot feel he's getting his money's worth. Airports that fulfill these requirements are invariably successful airports; their reputation as service institutions attracts and holds transient customers.

Unfortunately the number of well-managed airports are limited. Too often petty politics and local conditions make the average municipally owned airport little more than a poorly operated filling station, where a plane rub-down cannot be had even with pay and the main interest of personnel is to fill up the fuel tanks and collect for the bill. Supported as they are by tax money, there is little wonder that most municipally operated airports are looked upon as a necessary and expensive evil. The trouble is that too many airport managers are political appointees whose only interest is gathering in the monthly pay check; they care little for transient business because it possibly represents more work for them.

Airport management is as much a profession as aeronautical engineering, the inspection service or airline piloting. It requires a business head and a knowledge of airport problems. There are too many park superintendents and farmers directing the fate of American airports, creating barren pastures instead of fields of aeronautical activity.

Although transport companies come in for their share of trouble while operating on poorly managed municipal airports, they usually escape most of the inefficiencies because, in most instances, they maintain their own crews and establishments, thereby enjoying a self-imposed isolation. It's the private owners and transient operators who get most of the misery. And when they receive shabby treatment, they don't fail to get the word around. Airports build business upon their reputation just as any other commercial enterprise.

Airplane owners, pilots and operators who desire aviation advancement in their own communities might well take stock of their local situation; and should conditions so demand, they might effect a good house cleaning to the end that more aviation dollars would be spent at home and a reputable spot on the aviation map be awarded by the unwritten law of the sky.

Death Of A Brain Child

THE months pass into years and as yet American aviation has no $700 airplane. The thousands of gullible hopefuls who awaited the long-heralded appearance of the "poor man's" flying machine, have lost about all their originally misplaced hope and faith in the project and are at last looking about for one of the conventional light airplanes to satisfy their desire to fly, after losing a couple of years in the bargain during the long wait.

As a matter of honest editorial opinion, we do not bemoan the $125,000 expenditure of Federal money which explored the possibilities of certain light airplanes. But we do reiterate that the Bureau of Air Commerce should publish an honest summary of their light plane program, emphasizing the fact that their experiments with and patronage of certain peculiar designs and devices have failed to produce an airplane that could be manufactured in sufficient quantity to under-sell light airplanes now in production, and the fact that they have no more money with which to continue their exploitation.

Although recent sales of conventional light airplanes have broken all previous records, practically every light plane distributor can point to lost sales because of the Bureau's light plane program and the misinformation that has swept the country through magazines and the daily press.

Although a great deal of the blame for the wrong kind of publicity can be hung on the daily press in picking up the "around $700" idea, running it into the ground and diverging a lot of airplane sales into a "wait-a-while" category, the Bureau comes in for its share of criticism for its silent approval of the damaging publicity; the Bureau did not try to stem the tide of false hope that spread over the ranks of potential purchasers of light airplanes.

It's high time for the *official* demise of the $700 brain child. And it's up to the Bureau to sing the requiem.

Air Terminals For Southern Waters

Widespread acceptance of over-water flying awaits the construction of numerous facilities; necessary for future aeronautical progress, marine air terminals are inexpensive to build and maintain.

By George E. Haddaway

ONE of the astounding aeronautical paradoxes in the United States today is the relatively slow development of water flying, particularly in the South where thousands of miles of waterfrontage offer natural facilities unsurpassed by any other part of the world. In fact, marine air terminals are so comparatively rare in the United States that an inspired movement is now on foot and gaining momentum towards the early construction of seaplane bases in sufficient qualtity to give over-water flying a chance to enjoy as normal and steady a growth as the landplane phase has received since Kitty Hawk.

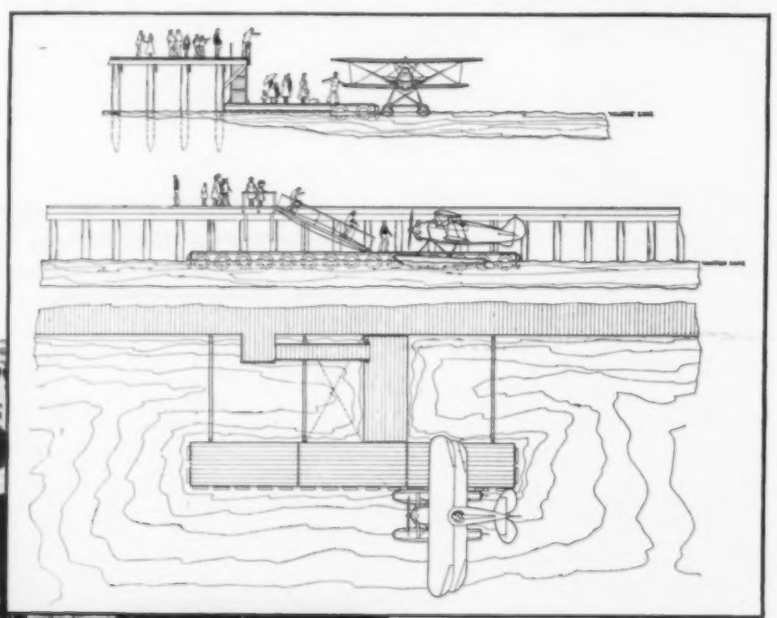
With only 32 seaplane bases as against some 2,000 landing fields in the United States, the discrepancy between the two figures is too alarming to go begging. Something must be done about it, not in the spirit of philanthropic or helpful experimentation, but in the face of necessity; because water flying offers many distinct advantages not available in any other type of equipment, and the utility of aircraft could be increased possibly one hundred per cent if proper base facilities were constructed to the extent of one-half the amount of existing landing fields. Many areas and communities now out of reach of landplane utility would be placed on the accessible list. Progressive towns and cities with plenty of waterfront area could enjoy the many benefits that accrue through marine facilities in addition to their regular landplane airports. Obviously, should the utility of airplanes be increased even twenty-five per cent, the impetus to the entire industry would be vehemently felt all down the line from the factories to the gas pits on the ramps. Water flying can do it.

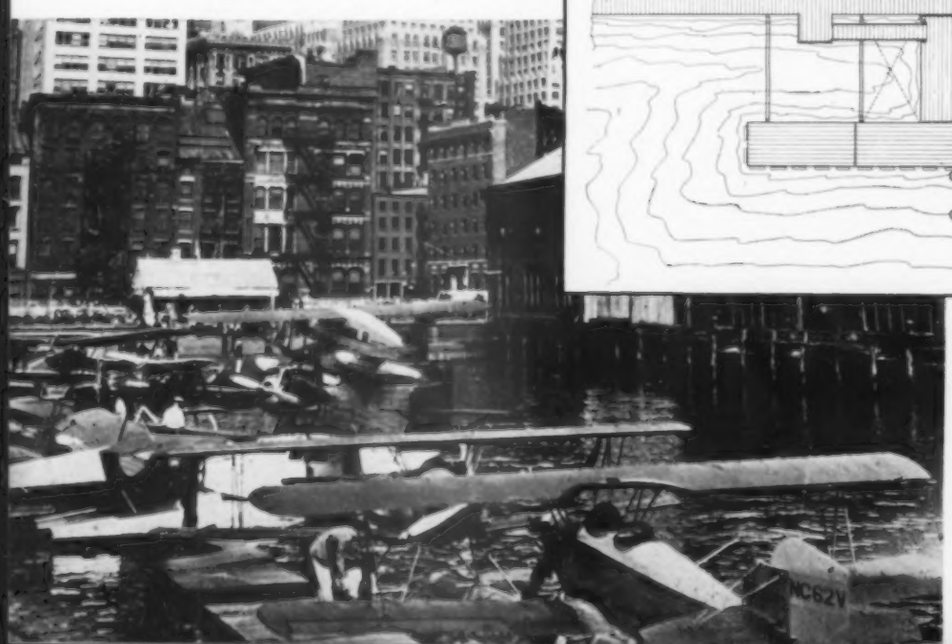
Back in 1934 a great deal of interest was displayed in the construction of the Wall Street Sky Port, which permits suburban New Yorkers to reach their offices in considerably less time than by any other means. But even the impressive success of this useful air terminal at the very foot of Wall Street failed to inspire other metropolitan centers to similar development. A few wide-awake cities are considering plans for eventual construction of marine air terminals, but as yet the movement lacks push and action particularly in the cities on Southern waters.

Nowhere else in the world are more natural conditions for widespread water flying available than in the Southern states along the Gulf coast, the Atlantic coast and Chesapeake Bay. And a paradox within a paradox is that the South, with all its seashore and harbor facilities, its bays and inlets, its broad rivers and expansive lakes, coupled with ideal weather conditions, lags behind the rest of the nation and has to point with apology to a mere handful of ramps that can be used by airplanes equipped for water flying.

AS recently stated by the Marine Air Terminals Committee of the Aeronautical Chamber of Commerce: "If your town sees little or no flying today, it is because you have no facilities for it. Your trains have depots. Your motor traffic has garages and bus terminals. You have set up docks for boats, both great and small. Flying needs docks."

They point out further that every community on a harbor, a lake or river actually *needs* docking facilities for over-water flying craft. They base this statement upon

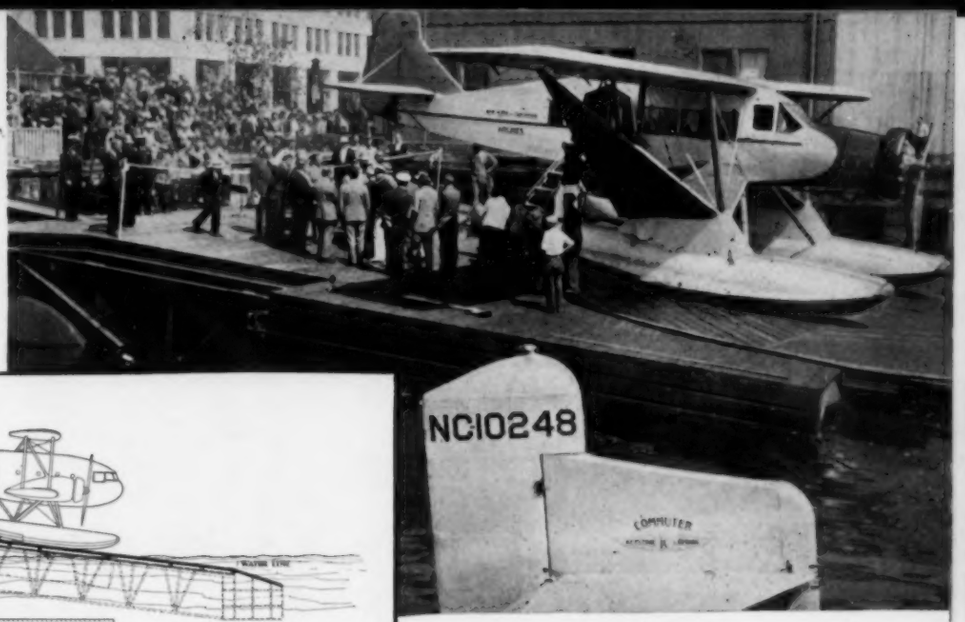




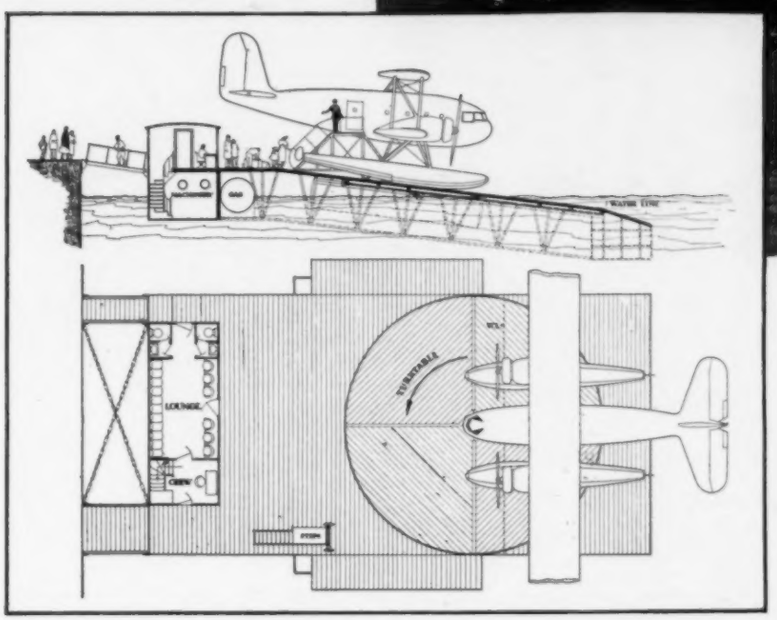
Above: This float type landing stage for over-water craft can be built for as little as $500. The size of the terminal and the number of planes accommodated at one time are limited only by the space available for adding new sections as the demand increases.

Left: The Wall Street Skyport in downtown Manhattan, where private owners birth their craft during their stay in the financial district.

Right: This floating turntable ramp permits large over-water craft to taxi in under full steering control. A 10-horsepower electric motor gives the turntable a half revolution in 25 seconds even though it may be carrying a 10-ton plane.



Below: Details of the turntable ramp for handling passenger and cargo planes. The ramp illustrated here was originally developed by the Edo Aircraft Corporation.



intelligent study and research and they have found that over-water flying always develops where there are facilities for it, because as a time saver the over-water airplane ranks first. Herein lies the primary advantage of water craft: they dock you at your destination; their activity is not limited to outlying airports.

The float-equipped plane, the amphibion and the seaplane need only water and the ordinary accommodations required by boats, the difference being that the over-water craft is a boat with wings and the wings must be accommodated as well.

Landing floats, fueling and occasional storage facilities in waterfront communities will develop the use of seaplanes at a relatively small cost because in most instances municipalities own and control their own waterfronts and expensive acres do not have to be purchased. Consequently the strongest argument to effect immediate action is the almost negligible cost of construction and operation, together with the fact that municipal, state and federal funds should go into marine air terminal construction, as logical and timely an expenditure as the money spent to prepare the way for present motor traffic on the streets and highways and the landplane traffic in the skies today.

In other words, landing fields already exist for those fortunate communities on the water; not only do adequate facilities require so little capital, but they return greater benefits per dollar invested than any other phase of transportation on land or water.

HEREWITH illustrated is the simple float type of marine air terminal that can be built for as little as $500. It is adequate for handling passengers of small over-water craft and mooring the ships for any length of time. This type of terminal can be located satisfactorily between the piers or along the shore line of any community on reasonably protected water.

In its simplest form it consists of a series of steel barrels supporting wooden stringers and decked over with wooden planking. The edges are planked below the water line and padded with automobile tires or the equivalent to cushion the craft moored alongside. The floats rise or fall with any variation of the water level. They are held in position approximately 30 feet from the side of the dock by means of a central float and auxiliary booms, which hinge or slide up and down on steel rods fastened to the bulkhead of a pier or side of a dock which may be used for other purposes.

With this arrangement smaller aircraft, seaplanes, amphibions or flying boats can come alongside the float without damaging their wings. A simple gangway connects the float to the pier. With more elaborate terminals of this type the floats can be made entirely of wood or steel suitably bulkheaded.

The float type landing stage for over-water craft offers many advantages. It costs less. Maintenance costs are reduced to a minimum because the float can be taken out of water during those seasons when it is not in use. It need not be subjected to ice or storms. It can be moved from one place to another as conditions warrant. It can be enlarged as needed without interrupting operations. Every waterfront community needs this type of terminal if it it to develop local flying over water.

For the metropolitan centers looking towards the establishment of facilities for transport operations, shuttle ser-

A Security National Airster on Edo Floats

Manhattan's Downtown Marine Air Terminal

vices, interurban commuter services between suburbs, outlying towns and the metropolitan business district, more elaborate facilities, of course, are necessary. In this instance the negligible cost of construction is as impressive as in the one primarily suited for smaller aircraft. Illustrated on page 7 is a turntable ramp representing much development work in meeting the requirements for discharging passengers and cargo from large seaplanes and amphibions in scheduled air transport operations. It is a floating barge, one end of which is an inclined turntable runway with a slope of about 9 to 1. The runway extends several feet below the water line, thus submerging slightly less than half the turntable.

Barges of the type illustrated here are 85 feet long and about 45 feet wide and are made of steel girders riveted and welded together, supported by large buoyancy tanks at each end. The surface is planked with wood to permit sliding the keels up and down the ramp. The tank at the upper end houses a workshop, storage room and a reservoir for compressed air. This air is used to fill the tank at the lower end of the barge to control the buoyancy under all conditions.

This type permits large over-water craft to taxi in under full steering control and come safely to rest on the turntable. The operator throws a switch, and a 10-horsepower electric engine gives the turntable a half revolution, or 180 degrees, in 25 seconds, even though it may be carrying a plane with a gross weight of 10 tons. This turns the plane half way around and also raises it several feet out of the water, because the upper and lower ends have exchanged positions. The attendant then rolls out a set of steps and the passenegrs leave the plane, all in less than a minute.

To take off again, the pilot merely opens the throttle and the plane glides back into the water. One person can opertae this terminal, which can handle from 6 to 12 large transport planes an hour, or at least 75 a day.

The upper end of the barge is connected by gangways to pier or shore. The gangways are cross-braced with chains to hold the barge in position. The upper end of the barge may hold a passenger waiting room, and other accommodations, or they may be located on shore.

PRIVATE flying needs marine facilities and municipal governments should be made to realize this obligation to an increasing number of their citizens.

Over-water flying appeals to the private pilot because of its convenience and sport. It provides a maximum of pleasure. In many cities the more desirable suburban districts are located on or near the water. With facilities for docking at home and in the business section where he works, the private owner of aircraft can commute in his own machine.

Some of the nation's most popular vacation resorts are on the water. Country homes usually are close to water. A city's marine air terminal offers the private plane owner one of the most convenient means of travel to and from vacation resorts and country homes, and the most desirable way because flying avoids surface traffic congestion and saves the time otherwise lost getting in and out of the center of town. Pilots and private owners of seaplanes become addicted to them because of the sheer sport available. They can fly low to enjoy the scenery or to escape thick weather aloft; over-water flying provides additional safety in that all below is a landing area.

NO matter the type, marine air terminals are of great advantage to the government, especially from a national defense standpoint. The United States has more than 6,000 miles of coast line to defend by over-water aircraft flying on patrol duty day and night in case of war; and adequate terminals on the coast and inland waterways are essential as emergency bases and in training personnel.

The federal government departments employing aircraft for transport surveys, patrol and other official business need marine air terminals in all waterfront cities to facilitate their work. More than twenty non-military federal departments use aircraft in routine and emergency operations.

In the event of any national calamity, such as great floods, earthquakes, riots and panics or fires in nearby towns, forests or other districts the local marine air terminal permits officials, troops, life-saving crews and Federal engineers to either arrive or leave with the utmost dispatch, and if occasion demands, they can establish the fastest kind of communication and transport service for personnel and supplies.

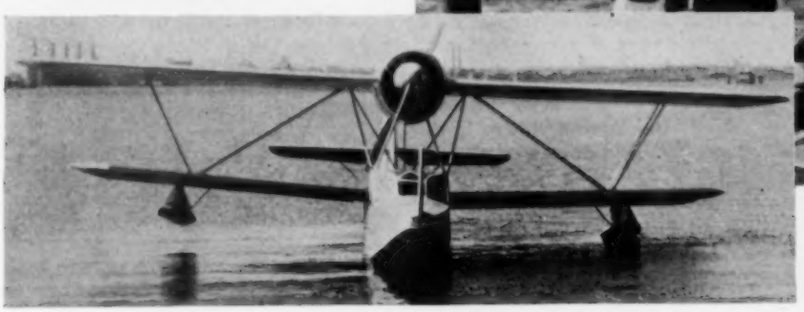
The importance of maintaining schedules in an emergency is a vital factor in manufacturing, supplying and transporting war materials. Water terminals located close to industrial and distributing centers facilitate the delivery of repair parts, tools and materials often required to prevent a complete shut-down of manufacturing plants producing war supplies.

Seaplane training and the popularity of over-water flying should be fostered for national defense. Marine air terminals will develop reserve pilots for the Army, the Navy and the air force reserves. One of the main advantages to be received from numerous water facilities is the evident popularization of over-water flying, which would enable manufacturers of float equipped craft to maintain their plants in a state of readiness for any national emergency.

THE A. C. C.'s study also pointed out that revenues to be derived from a marine air terminal will increase with the growth of over-water flying. Revenues which are immediately possible should include: rentals from scheduled air lines, rentals from aerial taxi services, sightseeing and training organizations, rentals from repair and overhaul concessions, fees for docking private planes, and fees for storage of transient planes. If the terminal is located near a well traveled highway it can be made self supporting without waiting for aviation traffic to develop. Oil companies could be granted special privileges of building a combined motor car and aviation filling station in exchange

Right: This Continental powered Waco is docked at St. Augustine, Florida, where seaplane facilities attract large numbers of sportsmen pilots from the North and East during the winter months.

Southern waters afford innumerable locations for marine air terminals and the State of Florida has been among the first to recognize their importance. Practically every type of modern American airplane comes off the production line so equipped that floats can be easily fitted and interchanged with the conventional landing gear.



Left: A Curtiss-Wright amphibion ready to come ashore with wheels down on a fixed ramp.

for having the oil company agree to maintain a constant supply of aviation gasoline and oils, an adequate waiting room and other facilities, with uniformed attendants available twenty-four hours per day to handle all transient planes. The filling station would not only enjoy an exclusive location, but also the added attraction of the publicity incident to its aviation tie-up.

The terminal would provide an operating base for non-scheduled aerial services maintained for charter hire, sightseeing and flights for pleasure, business or emergency. Over-water flight training schools would prosper with a convenient site for operations. Too often business men and amateur pilots do not have the time to journey far out from town to take flight training. In short, with proper management, the marine air treminal should pay its own way from the beginning. Should it not pay at the outset, any municipality could consider a carefully planned base as an important civic asset. In addition to the various advantages already discussed, a marine air terminal advertises the city as progresive in its transportation facilities. Its utility would include availability of quick and handy transportation for surveys of city planning, fire prevention, traffic regulation, highway renovation and abatement of nuisances, such as smoke, traffic congestion, water pollution, damaged power lines, conduits and sewer systems, flood damage and conditions created by storms and other disasters. Likewise it would provide an immediate means of police survey for any affected area when minutes count and there is no time to waste getting to an airport. It is available to all public officers in any emergency. But most important of all considerations, the air terminal would prepare the municipality for the inevitable growth and expansion in over-water flying.

Happy is the private owner who can commute from his home to the metropolitan district in his own plane. This small ramp, especially built for the Aeronca shown above, costs less than a motor boat dock.

Cities or individuals desiring to construct ramp and dock facilities need not be experts in marine terminal technicalities. The Aeronautical Chamber of Commerce, through its Marine Air Terminals Committee previously quoted, will cooperate to the fullest possible extent and lend advice and direction willingly without obligation. The committee will put behind any marine air project the full weight of all the experience of the past, and will supplement it with complete analysis of plans and recommendations for establishing the most practical kind of base in any particular locality.

With such guidance and direction as that, no water front community in the nation has a legitimate excuse for lacking an adequate seaplane base.

The Ins and Outs Of Traffic Control

Heavy traffic at busy air terminals brings a new problem to airport management; foresight and intelligence tackle the problem at St. Louis' Lambert Field.

By Howard Barman

DID you know that a control tower man may be held criminally liable in the event an accident happens because of his negligence? So contends the Aero Insurance Underwriters in a recent statement issued to their field organizations. And every effort is being expended by all individuals and companies involved to maintain safe operations under increasingly heavy traffic conditions that mean take-offs and landings every few minutes of the day and night at the more active air terminals.

Where scheduled air transport operations and miscellaneous flying activity come together on the same field, aircraft traffic becomes even more involved than when the two phases are segregated. Consequently, strict regulation is the only method by which airport management can guarantee public safety and preclude any chance for airplans to inherit from automobiles the wholesale public murder that occurs on the streets and highways of the nation. Thus far, aviation has brought ingenuity, intelligence and foresight into the traffic control problem, and with the continued cooperation of all who fly, we can expect to keep the record of busy air terminals as clean as it is now.

Archie League, veteran plane dispatcher and assistant manager of Lambert-St. Louis airport, at the mike in the control tower.

It is the radio technician in the control tower of the busy terminal who sees to it that safety regulations are obeyed, that passenger, private and mail planes arrive and depart with ease, safety and dispatch. Recently, inter-line safety agreements, covering regulation of air line traffic, have been drawn up and signed by air line companies. No one is more interested in safety than they. The man on the control tower will tell you that. Likewise, private owners and operators on the airports show a willingness to abide by strict regulation necessary for safe operations on and off the busy fields.

IN the control tower atop the terminal building of the $2,000,000 St. Louis municipally owned airport, the most modern equipment available for the speedy and safe dispatching of planes is utilized. One of the key units of the system is the traffic control light, cylindrical in shape and capable of putting out a powerful beam. It operates on the familiar "stop-and-go" system with red and green lights. A pilot must get the green light before he takes off and should he get the red light he must remain on the ground and not change his position.

Five radio receivers, including one all-wave set, are installed in the Lambert control tower. Through his microphone the operator can address an individual or a holiday crowd. On holidays the public address system proves advantageous when used to keep the crowds behind the fence and out of all danger.

Although the air line ground stations broadcast barometric readings to pilots for correcting their altimeters, the control tower is often called for a reading, thus affording another valuable service. A custom-built interphone system is also an aid to traffic safety. The operations offices of the three air transport companies, the two military units, the loading shelter and the control tower are hooked up by the system.

A tabulation on the arrival and departure of all planes at the field is maintained by operating a counting machine. The radio receiving apparatus is installed beneath the dispatcher's long work table at the fore part of the glass-encased control tower. The dispatcher can tune in on the frequency of the airport control tower. With the four receivers the dispatcher can work four separate ships at one time. Also on the dispatcher's work table is the recording instrument of the anemometer.

On top of the control tower are the runway indicator lights. There are six runways on the field and accordingly six large white indicator lights, distinctly separated by horizontal panels. If four lights are burning the pilot knows he is to use runway No. 4 for his takeoff. The runway light is for the convenience of pilots who have no radio apparatus in their ships.

The control tower operator's life is a busy one a good part of the eight hours he is on duty. Here is a running report on mid-afternoon operations:

"KGSA (St. Louis airport station) answering Benedict in 21. Surface wind NE 10 miles. Runway No. 5." It's a Chicago & Southern airliner arriving from Memphis.

The dispatcher speaks to the pilot: "Karl, use runway No. 4 if you wish. Surface wind NE 10 miles an hour."

A green ship is ready to take off on runway No. 5 and without warning a blue ship cuts across the runway in front of the green plane only a short distance away.

The dispatcher calls a flying service company office on the field. "Who owns that blue ship?" he asks. "I just caught him breaking the rules. I didn't like the way he taxied in front of another ship."

"American Airlines 185," says the dispatcher, speaking into his transmitter, "Northeast about eight to ten miles. You can come in and land on No. 5. Three ships flying around the airport."

The airline pilot reports he is six miles southwest of the field. The control tower operator speaks into the micro-

phone of the terminal building's public address system: "American Airlines arriving from Fort Worth."

The dispatcher puts on his headphone and listens. "American Airlines 34 trip 7 reports 55 miles out," he says after receiving the ship's report. "I'm going to change traffic on the runways. He'll be in pretty close to schedule. He is due in at 5:48." And the ship lands on schedule, on the runway cleared for it.

Picking up his field glass, the dispatcher focusses it on the pilot's compartment of American Airlines ship 34, identifies the pilot as Van Meter, and then makes his notations on the daily report which calls for information on identification of the airline plane, pilot, plane's number, time of arrival and point of origin.

American Airlines 185 bound for Chicago reports its position. Ninety miles out from St. Louis and the ship has been in the air 36 minutes.

Over the all-wave radio instrument comes the weather report from KCQ, the St. Louis weather bureau at Lambert Field, "Indianapolis. Ceiling unlimited and scattered clouds. Visibility 12 miles. Dewpoint 25. Air pressure 42. Wind NE 8. Barometer 30.38."

The direction and velocity of the wind at an altitude of 20,000 feet over Knasas City is also broadcast.

HERE are some of the high spots of the general agreement binding on airlines using the facilities of the Lambert-St. Louis field which, substantially, is similar to the regulations in effect at leading airports:

Pilots departing from the field must check in with control tower and remain in contact with the control tower.

Control tower is clearing house for all information on all aircraft.

Pilots contact tower for landing instructions.

Included in the general agreement are regulations governing altitude reports, maintaining a course on right hand side of the airway, and on crossing an airway when flying on left hand side of the airway.

And among the specific instructions for TWA, American Airlines and Chicago & Southern Airlines—companies using Lambert Field facilities—on both inbound and outbound flights is one on reporting exact time over the radio range station and expected arrival time over the field.

The military aviation units, with headquarters and flying equipment at Lambert Field, also abide by the inter-line safety regulations. None are exempt and that is why an almost perfect record is maintaind at Lambert.

Control tower facilities of today are in sharp contrast with the lack of equipment and shelter of a few years ago.

Back in 1930 when plane traffic control was instituted at Lambert, the dispatcher's sole equipment consisted of a "wheelbarrow and a couple of flags," says A. W. (Archie) League, who was the only dispatcher at the field from that year until the Spring of 1936.

In the wheelbarrow was a water jug, a collapsible steamer chair, the dispatcher's lunch basket and the traffic flags. The dispatcher couldn't leave the runways to go to a restaurant. "Every time the wind changed we had to do some walking," says League. "It was very hot in Summer and quite cold in Winter." In those days the dispatcher stood at the end of the runways to give his signals to the pilots. The red flag, then as today, signified the pilot had to stop; the checkered flag announced that all was clear for take-off.

Archie League drew up the traffic regulations now in effect at Lambert. In recognition of his wide knowledge of airport practices he was made assistant manager of Lambert-St. Louis Airport this Spring. He is retiring from his faithful services in the control tower with the good will of pilots the country over. Henceforth the tower will be manned by three dispatchers in eight-hour shifts in order to handle the increasing activity.

IT is due to the guidance and perseverence of Milton Girton, manager of the Lambert airport three years or until May of this year, that the control tower and all other departments of the big field have been kept abreast of modern improvements. Girton was a barnstormer in the years between 1921 and 1926 and for four years he teamed with Clyde Pangburn. He came to St. Louis in 1926 when he saw that the city was becoming an important commercial center in aviation and spent several years with the Shell Company's aviation unit as well as some time with American Airlines, Century Airlines and the Von Hoffman Flying School.

Lambert Field was fortunate to have had far-sighted men at the helm during recent years when the mounting problems of heavy traffic required more and more attention and preparation of facilities that would minimize loss of time for plane owners utilizing the field.

The intricacies of traffic control at the modern air terminal have not been developed over-night. Especially during the past two years has research played an important role in the development of equipment that would fulfill the demands placed on it by the man in the control tower for smooth functioning of arrivals and departures. Lambert-St. Louis municipal airport was one of the first major fields in the United States to visualize the need for proper equipment and capable personnel. Such Metropolitan airports with modern traffic control facilities should be advertised widely in order to disseminate reliable information for the use of busy air terminals that as yet are not prepared to handle with safety and dispatch heavy air traffic.

Special lighting equipment guides the night flyer with dispatch and safety in and out of the modern traffic-controlled air terminal.

Dixie's Dust Patrol

The dollars spent on crop dusting in the South increase annually as more and more planters look to the airplane for crop salvation.

By Benjamin F. Red

DURING the past two years the rapidly increasing demand for dusting crops by airplane has spread over the cotton belt. Much of this sensational demand is probably due to the restriction of acreage under the Government's A. A. A. program; however, once the cotton grower uses this method of increasing his cotton yield per acre, he is converted. The prospective field for these dusters appears unlimited. Citrus fruits and peas have been successfully dusted. Last year, at least one South American government gathered data on these dusting operations with the intention of introducing its use to the coffee raising industry.

With the migration of the Mexican boll-weevel into Texas and the Delta came experiments with poisonous dust. The dust, from the beginning, was quite effective; however, the methods of distribution were far from successful.

Hand guns, belching forth a spray of poisonous dust were first tried. Next, a saddle gun, operated by the rider on a horse. Then came a mule or horse-drawn dusting machine spraying seven or eight rows each trip across the field. These methods were all effective to a degree, but they were unable to cope with the rapid spread of this army of ravenous little bugs. Speed! Speed! Therein lay the salvation of King Cotton. Speed to compete with these female weevils that puncture from seven to fourteen squares every twenty-four hours and deposit eggs that hatch and reach their maturity in from sixteen to eighteen days.

In this search for speed the Government made some experiments with the airplane at Tallulah. Louisiana, in 1922. After numerous changes in the hopper design and many experiments in the methods of releasing the dust, the airplane promised success. Then came the patrol—Dixie's Dust Patrol. Today these commercial pilots with their modern dusters can lay down a blanket of poisonous dust over a hundred acres of cotton in from twelve to fifteen minutes.

Surely behind this dust patrol there is an interesting story. It begins with the entomologist who first makes an infestation analysis. This he does by gathering a number of squares, usually twenty, from each corner and near the center of each field of cotton to be dusted. He also examines the plants for army, or leaf worms and takes notes on the progress made by the plants. Examination of these one hundred squares is then made and the number of weevil punctured squares indicates the percentage of infestation.

This report of infestation is submitted to the plantation owner, together with a recommendation of the proper proportion of dust to be applied and what results may be expected.

Under normal conditions, with infestation below forty per cent, six pounds of dust to the acre is sufficient for one application. For army worms more dust is required, usually from eight to twelve pounds.

Three applications are given each field, dropped three days apart if the weather permits. Rain destroys the dust by washing it from the plants and more dust must be applied.

This poisonous dust is approximtaely twenty-seven per cent lead arsenic, the poison, and about seventy-three per cent lime, which acts as a carrier for the poison. It is about the consistency of flour and is white, except in two states that have laws requiring poison dust to be colored. In these states a slight pink or gray color is added.

Exposed to the air and sun, this dust rapidly loses its strength. It is said to be fifty per cent effective during the first twenty-four hours, twenty-five per cent effective during the next twenty-four hours and only fifteen per cent effective during the third twenty-four hours.

While the weevil, through direct eating, consumes some of the poison, most of it is taken through drinking the early morning dew which has collected the poison during the night. Therefore, early and late dustings have been found most effective. Th poison acts quickly and the weevil is dead within two hours. Care must also be exercised in dropping this dust near pastures as it means death to livestock, especially cows. They are more susceptible than horses or mules.

SOME fields have been known to show as high as ninety per cent infestation. This means ninety per cent of the cotton is already lost and unless the cotton is dusted immediately, the remaining ten per cent will also be lost. After a field reaches more than fifty per cent infestation, the entomologist can promise only to check the spreading of these pests, and save the cotton that is now blooming or soon to bloom. It has been found profitable to dust when only this 'top crop" can be saved.

Loading The Hopper

These sturdy built dusters, fully loaded, weigh approximately 3,200 pounds and have a cruising speed of one hundred miles per hour. The front cockpit is converted into a "V" shaped hopper made of welded aluminum and has a long narrow opening at the bottom. The shutter, operated by a calibrated lever near the throttle in the pilot's cockpit, regulates the flow of dust through this narrow opening. Mounted on the wing

is a small wind-driven motor which furnishes power to an "agitator" in the throat of the hopper. This agitator, closely resembling the agitator in mother's old flour sieve, extends the full length of the narrow opening across the bottom of the hopper and keeps the dust loose and fluffy so that it readily falls through the throat of the hopper into the ventura tube in a steady flow.

Salvation To King Cotton

The ventura tube, mounted directly beneath the hopper, is square. The front and rear openings are twelve inches deep by twenty-eight inches wide. The top, bottom and two sides are concave, making the throat of the tube much smaller than the openings. The blast from the propeller and the forward speed of the plane, together with the funnel shape of the opening, increase the speed of the air stream through the ventura tube. The speed of this air stream leaving the throat of the tube has been conservatively estimated at between two-hundred and sixty and two-hundred and seventy miles per hour.

The peculiar shape of this tube sets up a swirling, rolling motion of the air stream and as the dust is dropped only four to six feet above the cotton, this horizontal cyclone of dust covers the entire exposed surfaces of the plant. This cyclone spreads into a sixty-foot swath and after settling on the plants closely resembles a heavy ground frost.

At first, some of this wirling dust entered the fuselage through apertures for lateral controls and was swept forward into the cockpit. One pilot informs us his eyes were swollen shut for a week from dust entering through the vent holes of his goggles. However, it is believed that by rubbing his eyes he caused infection. This hazard has been overcome by placing "socks" around the control wires. They are small cone-shaped sleeves that are taped to the wires and glued to the fuselage and allow free movemnt of the controls.

SINCE the time for dusting is limited, the pilot leaves his base before dawn and hops over to the plantation on which he is to dust. There, by the lights of an automobile, he lands on a narrow field left uncultivated for this purpose.

Four negroes assigned each plane as a ground crew are standing ready to load the hopper. The dust is received in one hundred pound cans and six cans fill the hopper. In some cases where the landing field is unusually short or rough, the load is cut to four or five cans. One crew spent only two and one-half minutes opening the hopper door, dumping six cans of poison into the hopper and closing the door ready for the pilot to "take 'er away." Here, too, speed is essential.

From the time he can see those dark, charred snags of trees, cotton houses and other obstructions across the field, until some time between seven and nine o'clock, when the wind reaches a velocity of more than three miles an hour, minutes count. Again in the afternoon, from five or five-thirty until he can no longer see those pillars of destruction looming up to clip off a wing or wipe off an undercarriage, he must use sparingly of those minutes.

A wind of three miles an hour will cause the dust to drift. Always, with the slightest breeze, the dust is dropped so that any drifting will overlap the last swath and leave no strip undusted. "Thoroughness" is these pilots' by-word and their efforts to make a thorough job can be appreciated only when one sees the actual flying.

SEEMS easy does it? Try it! Swing down into the field at about ninety miles an hour. Level off and open the hopper simultaneously. Quick! Open the throttle. Keep an eye open for obstructions — fly four feet above the cotton tops and keep a straight course across the field. Your wheels will brush the tree tops when you come out but the rows must be dusted out. The weevil hibernates in the underbrush during the winter and begins his attack at the edges of the field.

See those trees flashing toward you? Pull up and close the hopper at the same time! Close the throttle and while you're still climbing kick her over in a skidding turn. The ship skids around, the nose comes down and you are ready for another sixty foot swath without making a wide banking turn and losing time and money. The wheels brush the tops of the trees getting in and out of the field, often they drop into the cotton when you level off and this has a tendency to drag you into the ground. Every twenty minutes you return to the plantation for a load of dust with no time out for a smoke.

Still sound easy? Try it for three or four hours in one stretch. But you would soon become used to it as they do.

Fatalities have been few in this industry and some pilots attribute it to the fact that quite a few young pilots after one or two trips find the work too strenuous, leaving only the best pilots to carry on. Sturdy built planes are another factor of safety which is proved by an accident last year.

The pilot was dusting rather late and had two small fields of cotton to dust. Separating these fields was a narrow field of corn. To save time the pilot swung down into the first field and dusting straight across it, hopped over the strip of corn and dusted straight across the second field. He had made several swaths across both fields when he landed abruptly in the cotton field, the plane completely demolished. He crawled out with only a few minor scratches, to learn that he had overlooked a cotton-house hidden in the edge of the corn field with its roof protruding slightly above the corn tops.

Most any southern airport can give up a similar story of the local pilot who almost "went West" while dusting cotton or other crops. Although the danger has been considerably lessened by better equipment during the past few years, motors can still quit at low altitudes and an emergency is apt to come up at any time. That is why there's no room for amateurs in the crop dusting game; and perhaps that is why so many members of Dixie's Dust Patrol have graduated into the ranks of the finest commercial pilots the world has ever known.

There is great significance in the fact that the airplane is becoming more and more an important tool in the world's basic industry—agriculture.

Some Things I've Learned

By Al Tuerpe

[This is the second article in a series dealing with fixed-base operators' problems, drawn from the experience of the operators themselves. A pilot-operator of long and varied service, author Tuerpe is general manager of United Aero Corporation on Winburn Field, San Antonio, Texas.—ED.]

BEFORE there can be a healthy growth and development in any line of commercial enterprise there must be a fair and legitimate profit. Concerns engaged in selling or renting airplanes, training students and doing charter work must not only derive a substantial profit from the use of equipment, but realize a profit from the professional training and experience of pilot and mechanic personnel. When all the factors of the average fixed base operator's business are summed up, we find too many pilots and operators selling their services and wares at a pathetically low figure, and in many cases, operating at a suicidal loss. Herein lies one of the most serious problems of the average fixed-base operator today.

In the first place, the student pilot should bear in mind that he is paying for more than just the use of the training plane. In addition to the flying equipment, which is ordinarily quite an investment in itself, the student is given considerable time on the ground when the instructor has to dispense necessary advice and counsel. If training is done in licensed planes, the instructor must be a transport pilot, a license that cannot be had for a song. In addition, there are operating costs and overhead charges for the use of the field, fuel, maintenance, hangar rent and the like. Since airplanes cannot be flown out of backyards, airport costs have to be shouldered.

The same holds true in the case of airplane sales. Numerous demonstrations are usually necessary before a sale is made. Sometimes these demonstrations require cross country trips of considerable length. Here again the time and experience of a salsman-pilot have to be at least moderately rewarded. Selling new airplanes to individuals for private or business use, at anything less than list price is folly. If all airplane dealers and distributors would hold to the list price of a plane they represent, there would be just as many planes sold, if not considerably more.

After a sale is made there are still many services which the seller must give. In many instances the buyer has to be taught to fly his plane or given additional instruction. If the dealer is wise he will see to it that flight training is done right, for the successful operation of the sold plane will contribute much to future business. It will encourage others to want to fly and own their own airplanes. In this way it becomes an important obligation of dealers and distributors to carefully advise and supervise the flying of the ships they sell. In time it is hoped that the manufacturers will supply each plane with an explicit book of instructions on the correct operation of their particular make.

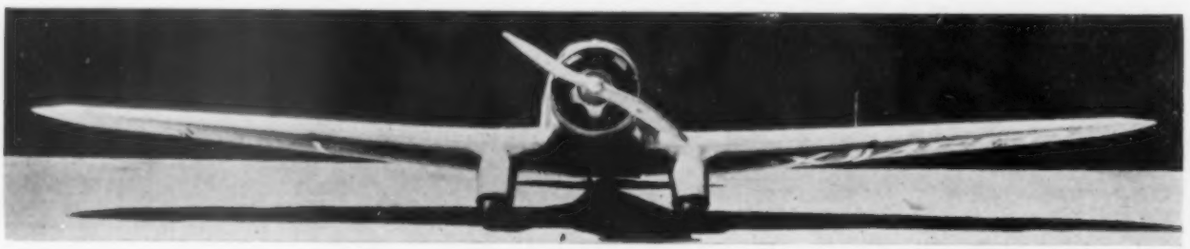
PILOTS, instructors, and airplane salesmen should refrain from giving unnecessary spectacular exhibitions of flying skill, because this may instill the same desire in some novice, with possible disastrous results. Likewise passengers should be flown in manner which will leave a good impression on their minds.

Now for that problem of approaching the public, whether air conscious or not. One thing that is certainly necessary is the courtesy and thoughtful attention of the whole crew. This applies to airport managers, pilots, salesmen, and mechanics. There may be times when some necessary precautionary advice must be given in diplomatic manner. For instance the youngsters cannot be allowed to walk over wings or poke holes in the tail group, but there is more than one way to kill the goose—and a right and wrong way to handle people who come out to the airport.

Sell and boost your own service and products on their honest merits. Exaggerated information will in time break down the confidence of others in you. Knocking your competitor's airplanes and pilots rarely leads to any gain. Your prospective customer, if he is smart, may even interpret this as an admission that what you have to sell is inferior. Persistent knocking might be just a smoke screen to keep him from venturing to a better place. Let's keep in mind the fact that all government approved commercial airplanes are reasonably safe when properly inspected and flown. Public confidence cannot be won by telling them that some other airplane than the one you are flying is not safe. When the other fellow finds out you have run down his ship with or without just cause, he will in turn run down yours. Result: You lose, he loses and the customer loses. The same applies to pilots. When questioned about some other pilot, perhaps in the next hangar, be honest and put in a good word for him if he so deserves.

Avoid casualties at all costs. If a customer inquires about pilot Jones, and you know pilot Jones is unduly reckless, and violates all laws of safe flight, then advise the customer of such. If on the other hand pilot Jones has a good record give him credit for it.

Let all the operators and distributors pull together in unison as much as possible, and let their actions be governed by fair thinking. When this is accomplished the public at large will ahve a cleaner and clearer picture of aviation. They will learn to respect it for its real value, and we will go places.



Aircraft 1936

The 1936 Fairchild "45"

THE 1936 model of the Fairchild 45 is a five-place, low-wing monoplane with retractable undercarriage, flaps for low landing speeds at high angles of descent and a cabin which in size, appointments and general arrangement suggests the interior of a luxurious sedan automobile.

The 1936 model of the Fairchild 45 differs in a number of outstanding points from the model announced in September of 1935. The new plane is powered with a Wright R-760-E-2 radial air cooled engine of 320 horsepower instead of the Jacobs 225, making posible a cruising speed of 173 miles per hour at 220 horsepower at 5250 feet, a top speed of 180 mph at 320 horsepower at sea level, and a landing speed of 49 mph with the flaps down. The plane has a service ceiling of 18,000 feet and an absolute ceiling of 20,000 feet.

Two front seats—each 17 inches wide and separated by a 6-inch aisle—have replaced the single wide seat in the 1935 model. The rear seat is 50 inches wide and 18 inches deep. Back of the rear seat is a shelf, in which there is a door giving access to the main baggage compartment during flight. The movable windows actuated by a crank of the automobile type are located in the front part of the cabin. A single door on the right side is provided on the 1936 model in place of doors on both sides. The instruments have been regrouped so that the flight instruments are centered. A nut-cracker type undercarriage replaces the splined oleo type previously used. The dimensions are the same.

THE cantilever wing is built in three sections with an N. A. C. A. 2218 section at the root, tapering to an N. A. C. A. 2209 section at the tips. It has an angle of incidence of 2 degrees with dihedral of 6 degrees beyond the center section and has a 15-degree sweepback.

In the center section is a compartment for 46 pounds of baggage and two 60-gallon gasoline tanks. The center section houses the landing gear when retracted.

There are three flaps extending along the trailing edge in three sections from aileron to aileron. They are constructed of aluminum alloy tubing and metal ribs and are aerodynamically balanced. The flaps are operated by a hand lever for instant raising or lowering. A gliding ratio of about 3-1 is claimed for the airplane with the flaps lowered. The ailerons are air-foil sections, tapered and balanced.

The tail surfaces are cantilever design with true air-foil sections. They are built up of aluminum alloy ribs and steel torque tubing and are fabric covered. The stabilizer and elevators are loacted on the top line of the fuselage. There is an adjustable tab on the rudder to correct yawing tendencies during speeds above or below cruising speed.

The "dep" control column has been retained, and the wheel can be "thrown-over" for operation from either front seat. The landing gear is retracted and extended electrically and there is an emergency handcrank on the left side of the cockpit for manual operation. A crank operates the adjustable trimming tabs on the elevators and a knob control operates the rudder trimming tab. A klaxon horn and red light operate in conjunction with the landing gear mechanism; a new type gear box indicator had been installed.

Special attention has been paid the arrangement and appointments of the cabin so that it resembles the interior of a luxurious streamlined automobile sedan. There is unusual leg-room. The seats are deep, wide, and comfortable. Hot or cold air is admitted to the cabin by means of a duct on the side of the fuselage. Switching from hot to cold air is done by means of a valve. The amount of cold or warm air is controlled by shutters which may be operated from either the front or rear seats.

SPECIFICATIONS

Dimensions:	
Length	30 ft. 4 ins.
Span	39 ft. 6 ins.
Height (overall)	8 ft.
Weights:	
Empty (with standard equipment)	2474 lbs.
Gross load	4000 lbs.
Four passengers	680 lbs.
Baggage and Accessories (with 90 gal.)	91 lbs
Baggage and Accessories (with 60 gal.)	271 lbs.
Fuel 90 gallons	540 lbs.
Oil	45 lbs.
Total normal useful load	1526 lbs.
Total payload (90 gallons)	771 lbs.
Total payload (60 gallons)	951 lbs.
Wing loading	16.1 lbs.
Power loading	12.5 lbs.
Performance—with 4000 lbs. gross weight—controllable pitch propeller:	
High speed (sea level) 320 h. p.	180 mph
Cruising speed (5250 ft.) 220 h. p.	173 mph
Rate of climb	1100 ft. m.
Take off distance (40 degree flaps)	580 ft.
Take off distance (without flaps)	680 ft.
Stalling speed (with flaps up)	59 mph
Stalling speed (with flaps down)	54 mph
Landing speed (flaps down)	49 mph
Service Ceiling	18,000 ft.
Absolute ceiling	20,000 ft.

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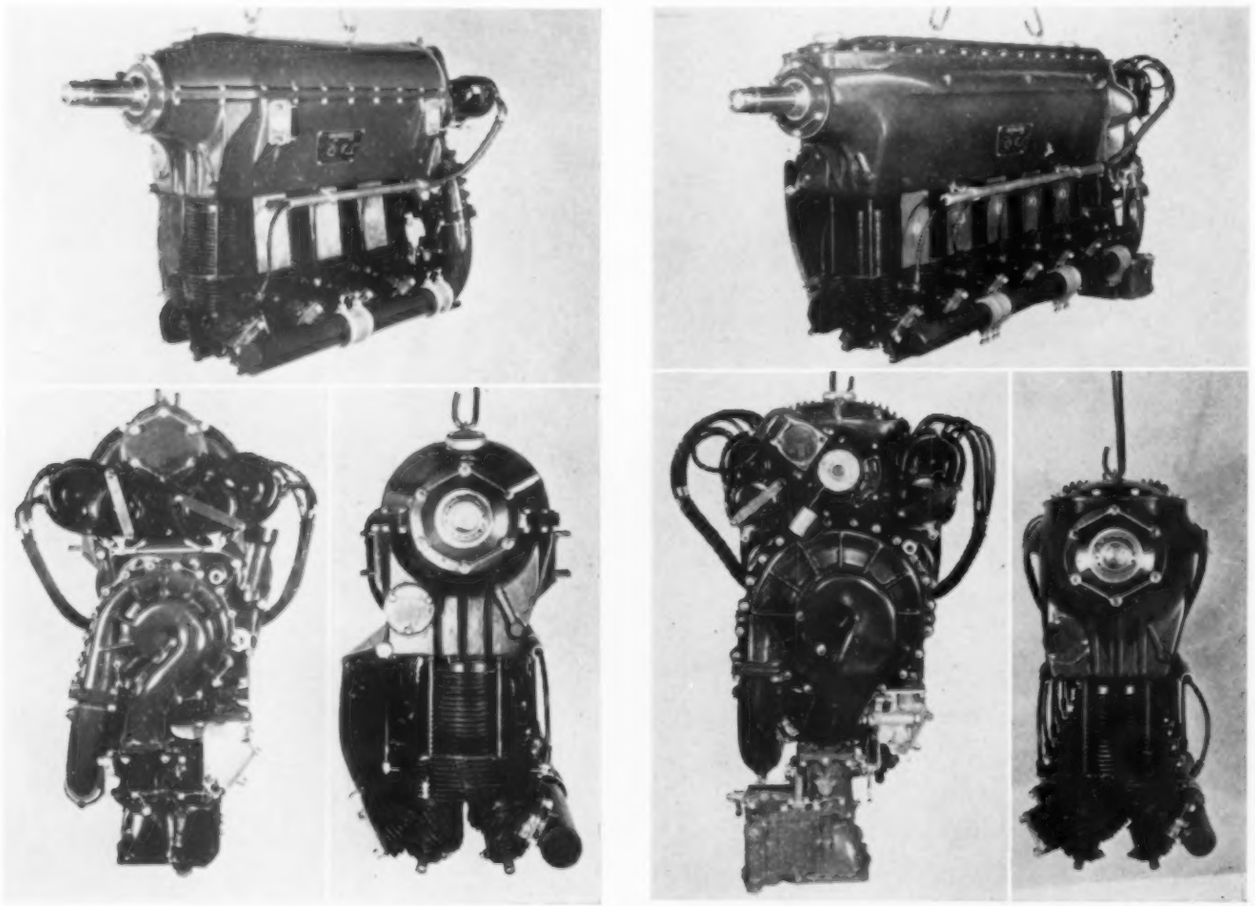
New Equipment

Menasco C4S and B6S Engines

MORE than usual interest attaches to the announcement of commercial production by the Menasco Manufacturing Company of the two new supercharged engines of the inverted in-line type, known as the "Pirate" four cylinder Model C4S of 150 h. p. rating at 2260 r. p. m. at 3,000 feet altitude, and the "Buccaneer" six cylinder Model B68 engine of 200 h. p. rating at 2,250 r. p. m. at 4,500 feet altitude.

Basic features of the new C4S and B6S engines are similar to other Menasco models which have preceded them, such as low frontal area, improved streamlining, elimination of objectionable exhaust noise and fumes, improved forward vision for occupants of the airplane, high propeller thrust line, low center of gravity, and greatly improved accessibility of the engine. The new models feature ruggedness and simplicity of construction. All accessories including the supercharger, have been grouped at the rear of the engine in such a manner as to be readily accessible. Crankcases are generously ribbed for maximum strength, while the crankshaft itself is carried on five main bearings in the four cylinder engine and seven with the six cylinder engine with a ball thrust bearing in either case to locate the shaft against thrust. All main and connecting rod bearings are of standard babbitt metal type. Pistons are of full skirt waffle head type with generous underhead cross ribbing to give added strength and heat dissipation. Piston pins float in both the connecting rod and piston being located by end buttons. Throughout the engine all wearing surfaces are generously proportioned for long life.

Nickel iron cylinders are standard on both engines although steel cylinders are optional for lighter weight. Separable heads are held to the cylinder and through to the crankcase by long nickel setel studs which provide easy servicing as any cylinder head may be detached by removing four nuts and disconnecting the intake manifold. The heads are of Menasco cast aluminum alloy with one intake and one exhaust valve per head spread laterally to provide ample cooling area over the head itself, and with generous finning for efficient cooling. The crankshaft itself has a splined propeller hub end No. 10 S. A. E. type. Standard S. A. E. mounting flanges are incorporated in the accessory case for mounting both generator and starter. Magneto ignition is standard with battery ignition optional. All aluminum castings throughout the engine are of Menasco foundry production. Superchargers are of Menasco design and manufacture, and both engines incorporate a special type cushion in the supercharger gear train which permits of direct drive without provision of a slip clutch. The supercharging itself has proved to be considerably more efficient than the ordinary type supercharger, largely due to the exposed supercharger scroll and long intake manifold which together provide an inter-cooler effect which cools the



Two Supercharged Versions of the Famous Menasco Line Left: Model C4S "Pirate." Right: Model B6S "Bucaneer."

compresed charge and permits the use of high manifold pressures without excessive heating.

Although the construction of crankcases is similar for both engines, the four cylinder crankcase is split on the center line of the crankshaft and major stresses are carried through the lower case, the upper case serving as a cover. In the B6S model the crankcase is of one piece type with cast Dowmetal cover plate, finned both internally and externally for strength and oil cooling. The engine mounting ledge is cast integral with the crankcase on the six-cylinder engine although the four cylinder model uses four separable mounting legs of cast aluminum. The crankshaft is Wyman-Gordon chrome nickel steel S. A. E. 3240 of one piece construction in both cases. Specifications are as follows:

SPECIFICATIONS

	Menasco "Pirate" Model C4S	Menasco "Buccaneer" Model B6S
Type	4-cyl., air cooled in-line, inverted	6-cyl, air cooled in-line, inverted
A. T. C.	No. 134	No. 139
Bore	4¾ in.	4½ in.
Stroke	5⅛ in.	5⅛ in.
Displacement	363 cu. in.	489 cu. in.
Compression Ratio	5.5 to 1	5.5 to 1
Supercharger Ratio	9.6 to 1	8:75 to 1
H. P. (Dept of Commerce rating)	150 at 3,000 ft. at 2260 r.p.m.	200 at 4500 ft. at 2250 r.p.m.

The Lear-O-Phone Model 15

A NEW midget transmitter especially designed for the private flyer has been released for commercial sale by Lear Developments, Incorporated.

As in all Lear aircraft transmitters the new L-15 model is available with either a local or remote means for adjusting the antenna tuning condenser.

The little transmitter unit is 5 inches by 5 inches by 7 inches, small enough to be mounted in front of the control column, under the seat or on the dash. It weighs less than 7 lbs; the power pack or dynamotor weighs only 8½ lbs., giving a total weight of the installed transmitter of 17 lbs.

The new model affords a power output of 15 watts 100% modulated. It was found by experiments in measuring the wattage put into the trailing wire antenna that any power less than this amount was insufficient to carry all reliable communication over the distances necessary when flying extremely fast aircraft. Wm. P. Lear, president of the concern bearing his name, has been able to work constantly over 100 miles, with reports on the signal strength by the Department of Commerce operators are usually QSA 4 to 5, and R6 to R9 at distances over 100 miles. Total battery drain is only 11 amperes at 12 volts.

The Lear-O-Phone is so designed that any frequency can be used for transmission from 2900 to 7000 kc by plugging in the proper quartz crystal. Complete adjustment of the transmitter can be affected while in flight.

According to the designer and builder of the L-15, the fixed type of trailing wire antenna has proven to be the most satisfactory radiator for itinerant pilots. The finding of a satisfactory wire for this purpose was a problem that had to be solved prior to marketing the equipment. It was pointed out that even the wire especially designed for the purpose has a tendency to shorten due to whipping action and high speeds, and in rough air. It is also subject to breakage due to snagging in taxing, during take-off and in landing.

In the older models no provision was made for re-adjusting the transmitter from the pilot's seat while in flight to assure radiation to the antenna when its characteristics were changed due to the breaking or "shortening" process. A trailing wire antenna has a definite impedence for each foot of wire used and may, from an electrical standpoint, look like a resistance, a capacity, or an inductance, according to its relative wave length.

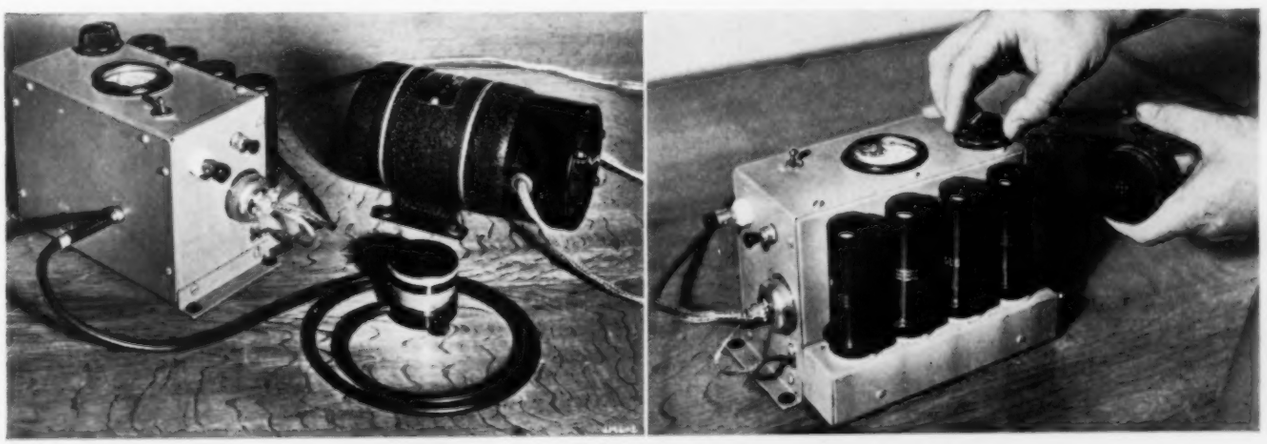
When used on 3105 kc, 82 feet of wire closely approximates ¼ wave antenna. This has a resistance of around 50 ohms and reflects neither capacity nor inductance. However, shortening it to 75 feet, it begins to look like a capacity. Lengthening it 5 more feet, it appears to be an inductance, so that in reality a trailing wire antenna can be almost anything and requires some means of matching its impedance to the transmitter while in flight, or at least some means to insure that the tank circuit of the transmitter is always in resonance. which in turn will insure that the maximum amount of radiation will be taking place from the antenna for the impedance match obtained.

Thus the antenna controls simplify initial adjustment to this condition, as well as continually assuring its adjustment, and are a safeguard against radio contact failures, which are usually due to lack of radiation caused by incorrectly matching the transmitter to the antenna.

The Hagner Position Finder

A NEW navigation instrument known as the Hagner Position finder, which automatically solves the spherican triangle and therefore drastically reduces the likelihood of errors and eliminates the loss of time involved in

(Continued on Page 30)



The Lear-O-Phone Model L-15 Aircraft Transmitter

In this model, emphasis has been placed on the facility of readjusting the transmitter in flight to assure radiation to the antenna when its characteristics have been changed due to the breaking or shortening process. Note method of adjusting the antenna tuning condenser.

News Briefs

Notes From the Industry at Large

Award for Young Men

An award in memory of Lawrence B. Sperry, pioneer in blind flying and air navigation, will be given annually for outstanding achievements in aeronautics by young men, it was anounced by the Institute of the Aeronautical Sciences.

A fund of $10,000 will be provided by Elmer A. Sperry, Jr., Edward G. Sperry, and Helen Sperry Lea, brothers and sister of Mr. Sperry, who was drowned in attempting a flight across the English Channel on December 13, 1923. The Fund, which will be administered by the Institute, will give a certificate and $250 in cash to a young man who, in the opinion of the Award Committee, has made "the greatest contribution to the advancement of aeronautics during the year for which the award is presented." The donors have chosen as the Committee to select the recipient for 1936, Grover Loening, Glenn L. Martin, Charles L. Lawrance, Major James H. Doolittle, Elmer A. Sperry, Jr., and Major Lester D. Gardner.

Crusader Under Production

Four AG7D Crusaders have been ordered by Mountain Airways Corporation with option for a fifth, according to T. M. Shelton, president of Crusader Aircraft Corporation. Construction of the five planes has already been contracted for which the Timm Aircraft Co. at Grand Central Air Terminal who are now well under way in the construction of the experimental model. Crusader Aircraft have their own engineering force, but have jobbed out the construction of their seven-pasenger plane to Timm.

While static tests and other work is progresing on the first AG7D and plans are being laid for the production of five more, the original Crusader AG4 is undergoing a remodeling. Both engines are being majored in the Menasco plant, two controllable pitch props are being made to replace the old set pitch props and the gear is being made retractable.

Bill Click Says:

Our approved shop is now ready — all departments — engine, propeller, instruments, airplane, "etc" — Tell all your troubles to us!

BENNETT AIRCRAFT, INC.
Hangar 1.
Love Field—Dallas, Texas

Clayton With A. C. C.

Leighton W. Rogers, president of the Aeronautical Chamber of Commerce of America, Inc., announced the appointment of W. C. Clayton as aeronautical engineer for the Chamber, explaining a new phase of the trade organization's activities on behalf of its members. Mr. Rogers said: "Mr. Clayton will work under the direction of the Engineering Committee of the Chamber on special surveys seeking improvement in requirements for the design and construction of airplanes. He will coordinate the engineering thoughts of the industry for presentation to the Bureau of Air Commerce which specifies the airworthiness requirements for all aircraft subject to federal regulations. The technical departments of the manufacturers will cooperate through the Engineering Committee of the Chamber."

Seversky's New Wing Tank

An airplane gas tank that can be punctured in many places and repaired within a few hours while still in the plane, is a feature of the all-metal Seversky Amphibian which now holds the world's speed record of 230 miles an hour.

Instead of building a separate tank and installing it between the spars of a wing, Alexander P. de Seversky made the tank a part of the wing, with the skin of the wing as the sides of the tank. In military use, such a gas tank could be riddled with bullets and repaired from the outside without keeping the plane out of the air for more than a few hours.

The special monocoque construction of the Seversky wing, consiting of a sytem of multiple "boxes," makes posible this tank construction. The seams of the particular box which is to be the tank are liquid-tight, and the end walls and baffle plates of the tank contribute to the strength of the wing. Vibration, which accounts for so many gas tank leaks in the average plane, has no effect upon this tank.

To Fly Sub-stratosphere

The end of June will find Col. Clarence Chamberlain again winging over the Atlantic in an attempt for a new flight record. The Colonel announces he will probably make his flight through the sub-tratosphere from Newfoundland to Ireland.

His airplane will be a rebuilt Lockheed Altair monoplane having a retractable landing gear and open rear cockpit. Decision as to the power plant to be used will be made after tests are completed. A Curtiss Conqueror water cooled

engine having a supercharger and axhaust driven blower may be used. With these two stages of supercharging the engine gives practically its full 700 hp at 20,000 feet. However, optional powerplants will be the Pratt & Whitney Twin Row Wasp of 1,000 hp or the Wright Cyclone of equal power.

Boeing Drop Test Jig

What is declared to be the largest drop test jig ever built has been employed recently by the Boeing Aircraft Company for use in determining load factors of the landing gear being installed on its giant four-engined Model 299 bombers for the United States Air Corps.

Thirty feet in height, the jig is constructed of structural steel on a cement foundation. Loads are placed on a moving carriage which is guided by large ball bearings fitted around a track running the vertical length of the jig.

Tests of a Boeing 299 Bomber main wheel assembly reveal that the gear will withstand a load of approximately 80 tons as compared to the bomber's gross weight of 16 tons. In these experiments a load of 16,000 pounds of lead was placed on the carriage of the jig and dropped 24 inches to produce an impact on the one wheel of approximately 40 tons. The object not only was to determine loads but to test the shock absorbing struts for their ability to absorb loads moothly and evenly.

Main tires for the Boeing 299 Bombers measure 55 inches in overall diameter, with a 19-inch cross section and 23-inch rim diameter.

Lockheed Plans New Factory

Lockheed Aircraft Corporation has taken an option on acreage near Union Air Terminal, Burbank, Calif., and plans for the construction of a new factory are being considered.

Robert E. Gross, president-treasurer, said the Lockheed Corporation now has a backlog of unfilled orders amounting to more than $630,000. Additional sales of the Electra type transport and the new, twin-engine Lockheed 12 will necessitate an increase in plant facilities.

The land under option borders on Union Air Aerminal, West's largest airport and the third most important field in the United States. Construction of buildings with floor space of from 100,000 to 125,000 square feet is contemplated, Gross said.

Largest Order

An order for 400 "flivverplane" motors was recently signed by Mr. W. T. Piper, of the Taylor Aircraft Company. This order, for Continental A 40-3, thirty-seven horsepower airplane motors, is the largest single order ever issued for civilian airplane motors.

In accepting this order the Continental Motors Company signified their intention to spend $25.00 per motor through their experimental division in an effort to increase the horsepower of the motor without an increase in weight. They hope to secure an Approved Type Certificate from the Bureau of Air Commerce this summer with a rating of 40 horsepower on the little A 40-3.

Wright Elected President

Guy W. Vaughan, president of the Curtiss-Wright Corporation has announced the election of Burdette S. Wright as president of Curtiss Aeroplane and Motor Company (a sudsidiary) of Buffalo, New York.

During the past vear, under the supervision of Mr. Burdette S. Wright, the Curtiss Company establish a peace time production record in producing 130 planes for the United States Navy in less than twelve months, two months ahead of their guaranteed schedule of deliveries.

Mr. Wright succeeded Mr. Ralph S. Damon as president, who resigned on December 31, 1935, to accept a position with American Airlines.

Conferance At Orlando

On July 9th and 10th a statewide conference on aviation will be held in Orlando. Florida. Invitations are being extended not only to people directly interested in aviation but to state, county and municipal officials and influential citizens who should take a more active part in aviation development. The program is planned primarily to interest the above group in the problems and progress of aviation in Florida and the United States. Major A. B. McMullen, state director of aviation, is in charge of the conference.

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Everything for the Airplane Owner, Operator and Manufacturer

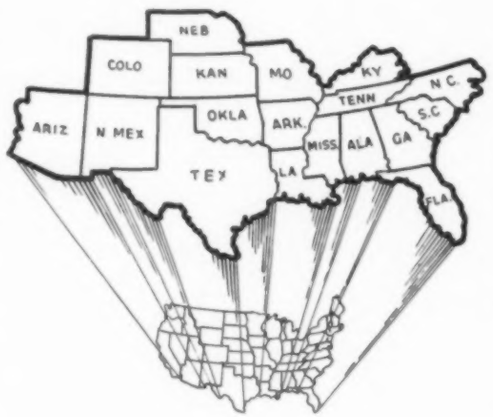
Ports of Call

Correspondence from the Airports and Airways

Birmingham, Alabama

By Earle Wheeler

Ladies Day at the Birmingham Aero Club Luncheon recently at the Tutwiler brought out the large attendance of 80. Mr. Lawrence with his harp and guitar, little Miss Clara May Wolverton, acrobatic dancer from the Laird School of Dancing, Ed Spencer accompanied Chas. Sharp who impersonated "The Lady in Blue" direct from Hollywood and Homer Panter, Abe Berkowitz, Brown Hill, and Tom Oster in the Aero Club "Harmony" four offered entertainment par excellence during the meeting. Imagination was not quite as strong as what was served them during rehearsals so the quartet received the gong. This Club with 108 active members is laying plans for the 6th National Air Carnival here that will surpass all others in size, interest and events shown. Birmingham's air minded will not have to trek off this year to Cleveland or Miami to see aviation notables, daring stunts or the latest type airplanes. Even a possibility of seeing the Von Hinderburg, Germany's newest Zeppelin, is in the offing.



Steadham Acker, president of the Aero Club and general chairman of the Air Carnival, named the following to serve as committee chairmen during the show: Finance, Hayden Brooks; invitations, Dave Denney; programs, Asa Roundtree; publicity, Julian Martin; entertainment, Homer Panter; reception, Sam Clabaugh; field, B. A. Schroder; junior activities, Brown Hill; transportation, Harry Frazier; women's committee, Elizabeth Mayes; traffic, W. O. Downs; army and navy, Edmund Armes.

The annual federal inspection of the One Hundred Sixth Observation Squadron was conducted by Lieut. Col. Ira A. Rader, air officer for the Fourth Corps Area, Atlanta, on May 13. At this same time Capt. Oakley G. Kelley, technical supervisor at Fairfield air depot control area, conducted an air corps technical inspection.

John Crofford flying his Taylor Cub from Huntsville, Ala., made an overnight stop here recently. He reports the following new students have started their flight instructions with him: W. E. Butler, Bill Frazier and Bill Certain.

The Flying Aces Circus made headquarters at the Municipal Airport here this year. This has become an annual stopping place to have their stunt planes overhauled by King Aircraft Service, and during their stay here several shows are put on in nearby towns. Jimmie Woods, manager, has with him this year, Miss Jessie Martin, pilot and wing walker; Squeeke Burnett, stunt pilot; and Harold Johnson with his tri-motored Ford that does unbelievable stunts for a 14-passenger plane. Ordinary aerobatics have ceased to thrill these dare-devils and some of the stunts they have perfected broach on the impossible.

It is quite interesting to watch a young fledgling progress through the different stages of flying around an airport. But to see one stick to it doggedly, gain his transport license, become the operator of a flying school and approved repair shop and then watch a romance unfold with that ever happy ending of wedding bells, seems too much like a modern movie plot. Those around the Municipal Airport at Birmingahm witnessed such a drama played by Harry King. And on May 16 he made his last solo flight of single bliss and landed at the altar with pretty Connie Stull, whose winsome smile will smooth out much of the rough sailing on their dual flight along the skyways of life.

Bryan, Texas

By L. A. Lindsey

This airport is preparing to welcome more airplanes and pilots than ever before, because of the cotton dusting season that is now approaching and which will begin as soon as the rain ceases. We are looking for one of the most profitable cotton dusting seasons in the history of aviation.

The flea hopper emergence or hatch this spring is already greater than in 1935 and is more like that of 1926, a flea hopper year, than any other year since that time. The likeness occurs in the large numbers which hatched during the month of April. Of more importance, however, is the record-breaking hatch which is taking place during the early part of May. Already the number of insects hatching per 100 croton weeds this month has exceeded all records for the past ten year period. This fact strongly indicates that the flea hoppers may again cause considerable injury to cotton. The only factor which may prevent it is the occurence of dry weather the remainder of the spring, so far all we have had is rain, which is in the favor of the flea hoppers.

A free air show was given at this airport recently to welcome Irvin Davis, an old friend of ours, who was the guest of Mr. Dick Buswell, chief pilot for the Brazos Valley Dusting Corporation. Mr. Davis gave a demonstration of his noted Bat Wing jump and missed his mark on the airport not more than ten feet. Dick Buswell also made a jump from 10,000 feet and missed his mark not more than a mile. Dick also gave a demonstration of what the

Taylor Cub will do when he made several loops and rolls and a hurdle jump.

Mr. Code, noted entomologist of the Delta Air Corporation, was a visitor here during the past weekend. He stated that most of his fleet of dutsers were now in Florida and would come to this sector within a short time.

Solos for the month on the Taylor Cub of the Putz Flying Service are: Watts, Fulgham and Millach.

Byron Black, owner of the Black's Airport, flying his Travelair, made two charter trips to Dallas last week, and is doing considerable advertising with his ship.

Joe Rohmerts of Navasota, Texas, sold his Arrow to a party in Mission, Texas, and made the delivery himself. Joe is one of the best prospects for a new ship that I know.

J. L. Schroeder of Houston, Texas, a pioneer of the cotton dusting business, is a visitor here and is flashing a handful of dusting contracts. Mr. Schroeder says that he will have his fleet of ships here within a week or so. Among his ships is the large Douglas which is equipped to carry about 1,500 lbs. of dust.

Byron Black says that he will have his Airport all dressed up for the dusting season, as all ruways are to be graded and marked and he will have a new pump and will have Stanavo on the field.

L. A. Lindsey and Robert Putz flew to Brenham, Texas, where they put on a one-ship aerial circus for the benefit of the Mayfest celebration.

Carthage, Missouri

By Don Mayes

Dr. B. E. De Tarr of Joplin and also Dr. Kingsborough have been taking time at the Carthage airport. Dr. De Tarr has about twelve hours solo to his credit and is one of the

Bub Merrill Says:

Be sure and take a "squint" at the new waco—Boy, it's a honey!

BENNETT AIRCRAFT, INC.
Love Field—Dallas, Texas

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● The complete facilities of the largest service organization maintained by any aircraft manufacturer are available to owners of Waco airplanes. More than 100 authorized agents for the sales and servicing of Wacos are located in 35 states and Alaska, and 16 foreign countries.

Waco's widespread service facilities undoubtedly contribute to Waco's continued leadership in aircraft registration. However, the Waco itself—its rugged construction ideally combined with high maneuverability—is the prime reason for Waco's domestic sales of 4-5 place cabin planes in 1935 practically *equalling the total domestic sales of all other makes combined!*

Ask your nearby Waco dealer how a Waco may be purchased from income rather than capital. Ask him, or ask any pilot, why Waco—with its luxury, its economy, and its flight and landing characteristics that are better than ever—is *just the airplane for you.* Or write direct to the factory for full information on the complete Waco line.

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WACO AIRPLANES

best boosters for aviation in the district.

The annual Missouri Air Tour will make its rounds this month and are scheduled to be in Carthage on the 13th. Thirty or more planes will be in the fleet, most of them privately owned. They will visit all of the larger airports in south Missouri.

Art Goebel was in for gas recently, having come through Springfield. Facing a strong headwind he made the 50-mile trip from Springfield in 45 minutes with his J69 Speedwing Travelair, with his airspeed registering 125 m. p. h. all the way.

Inspector Koch of St. Louis dropped in recently in his Monocoupe and inspected and relicensed quite a number of planes.

H. G. Harper, port manager, has been doing quite a lot of mechanical work for the pilots over at Pittsburg, thirty-five miles away.

During the dry weather this spring Mr. Harper has lined up a number of new students and passenger hopping has been good on weekends. He trains in a new Taylor Cub.

C. W. Whittenback from Joplin gave us all a fine exhibition of stunt flying the other day in his Great Lakes. Slow rolls, inverted flying, spins, etc. An old hand at the stick, too.

Chanute, Kansas

By James Baker

The Army dropped in recently in the form of a new Northrop Attack plane. The ship was flown by Captain Walthall of Barksdale Field, Shreveport, La. Captain Walthall visited with his folks in Thayer, south of Chanute.

Glenn Workman, Emporia, is having his Siemans Waco recovered at the Chanute Municipal Airport. Work is under the supervision of airport manager O. E. Dickerhoof.

Lloyd Cantrell, Yates Center, reports the sale of his OX Waco to Loren Lippoldt of Wichita. He later announced the purchase of a Hisso Waco from Bob Gay, Pittsburg. The ship is being hangared at the local airport.

O. E. Dickerhoof, airport manager, has been appointed distributor for the entire state of Kansas, by the Aeronautical Corporation of America.

Earl Fields, Tulsa, was in Chanute during Decoration Day and the day following, hauling passengers in his Tri-motor Stinson. He was accompanied by Mile High Baxter, parachute jumper, and his daughter.

Harry McGuire, airport employee, is nearly ready to begin the covering of his C3 Aeronca.

Recent visitors at the airport include the following:

A. N. Sellmeyer flying an Aeronca; R. C. Quinlan flying a Waco; Earl Fields in a Tri-motor Stinson; Mr. Lafeveri, factory representative, flying a new Aronca low wing; George Hart in a Porterfield demonstrator; Don Goff in a Kari-Keen; Brown flying a Brown Special; Bob Gay in a Hisso Waco; and Stevens and Laher in their Inland Sport.

Pete Clausen, flying a Continental Waco, and Aubrey Keif, flying a Wright powered Stinson; landed here enroute from Coffervilleto Kansas City. Both men are representatives of the Texaco Company.

Coffeyville, Kansas

By Harold E. Haggard

Coffeyville's 7th annual air meet and air races scheduled for the Municipal Airport June 21, bids fair to surpass all previous local air shows. The program will include speed races, stunting, contests, etc. All events will carry cash prizes. Pilots from all over this territory are planning to attend. An attempt is being made at present to have as guests of honor members of the Tulsa Airman's Club of Tulsa, Oklahoma. This organization is composed of sportsmen pilots and operators of the Oil City and they make regular mass flights to nearby cities for no other purpose than boosting aviation.

The Hon. Harry H. Woodring, Assistant Secretary of War, and Mrs. Woodring landed here recently in an Army Douglas. The Woodrings went from Coffeyville to Neodesha by automobile to visit relatives. Mr. Woodring reported a smooth trip from Washington.

The O. C. S. Manufacturing Company took delivery on their new 450 Wright powered Beechcraft in May. Rolley Inman flew the ship from Wichita. The new Beech was used constantly during the 9th International Petroleum Exposition in Tulsa, carrying company executives back and forth from the home plant here. Airport manager Berentz flew the company's five place Spartan during the show to transport additional customers.

Earl Fields paid us a visit in his Stinson during a barnstorming tour. He carried more passengers than any barnstormers in recent months. His seven year old daughter, known as "the youngest pilot in the world" accompanied her father. She flew her Taylor Cub here to the amazement and delight of the crowd.

The new name for Sunset Inn is Airport Tavern. The new manager is Edith Kenney, wife of Capt. C. J. Kenney of Selfridge Field, Michigan.

Lee Ferguson is again flying his Warner Cessna which underwent a major on the motor. Lee and Henry Duncan did the work. Lynn Berentz has a new student in a Mr. Cunningham from Sedan, Kansas. Lynn recently went to the "bow-wows" when Paul Johnson's white German

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police dog wandered off, to be found by Berentz, who was hired to make the aerial search.

East Bank, West Virginia

By Harold Angle

Miss Beulah McCown aided in the recent air show when she stunted her Travelair. Being the only woman pilot at the show she was given a great welcome when she landed.

Among other pilots taking part in the air show were Lieut. Hubert Stark, David Williams, Bill Wiseman, Mr. and Mrs. Austin Beckett, Nello Danise, Bill Hickman, Jimmy Griffith, Charles Blood, and James Beckett of Charleston, Paul Kessler and Buddy Childress from Roanoke, Virginia, and "Donnie" Marshall.

Harry Lawrence Starr, state police stationed at Elm Grove, is flying again. He was formerly connected with the Army air service.

Leigh Brintnell of Edmonton, Canada, took off recently in a Canadian Nordwin plane for New York City. Mr. and Mrs. Brintnell have been visiting in Charleston.

Ray Shriver has at last obtained that Aeronca which he has been planning to buy for three years. Good luck to these eon wishers!

Among recent visitors were: Cadet Cochrane and Captain Jacobs in two P-26A pursuits from Selfridge Field, Michigan; Carl Freidlander of Cincinnati, Ohio, in a Stinson monoplane; Emery Riddle of Cincinnati in a Waco F; Capt. J. R. Gill of Cleveland in an Army O-38; Earl Richardson of Richmond, Virginia; A. C. Barker of Morgantown in a KR34; Major E. Rogers, Columbus National Guard, in an Army observation plane; Howard G. Mayes, of Huntington in an Aeronca; and Roy H. Fowler of Beaver Falls, Penn., in a Waco cabin.

New students are: John L. Thomas, enrolled in the Kanawha Flying Club, and R. W. Reicell, enrolled in the Williams Flying Club at Wertz Field.

El Paso, Texas

By John Thacker

Juan Kan, student at the El Paso Flying Service, received has amateur pilot's license in May. He is the first Chinese student to receive a license in this city.

Jerome Martin and Abe Carrasco both received their private license. If the "maestro" Jack Weiler keeps losing his students by licensing, he will have to double his training capacity. His percentage of fiinished training is high.

Overheard at the restaurant: Student to Jerome Martin: "How about teaching me figure 8's." Martin: "Why not get Jack to ride with you?" Student: 'Jack has taught me everything he knows already."

"Wings," the airport mascot, has disappeared. If he lands at any nearby airport, ship him back C. O. D. He is a foot high, black body and white legs. Breed unknown.

A group at the airport recently decided to go on a weekend picnic. The following flyers landed in Carlsbad, New Mexico: Mr. and Mrs. Jack Weiler. Mrs. Adeline Lee. Mr. Bill Orme, and Mr. and Mrs. John Thacker. What happened to the rest of the group, nobody knows.

Paul Lee, who returned recently from Los Angeles, reports on several of our former El Paso friends. Grant Nichols is working for Joe Plosser at Grand Central. A. B. Fitzgerald is flying co-pilot for American Airlines on the western leg.

TWO BARGAINS PRICED FOR QUICK SALE

Wright powered Waco Cabin DeLuxe, metal propeller, special paint, red fuselage and silver wings, electric starter, 70-gallon gas tanks, engine-driven generator, RCA radio receiver, landing lights, three 1½-minute flares, cactus-proof inner tubes, turn and bank indicator, rate of climb indicator, Kollsman Sensitive Altimeter, Head Temperature Gauge. Total time on airplane and engine 834 hours. Time since major overhaul on engine, less than 230 hours.

$4,195.00

Ambulance Plane, 1933 Waco Model UIC, Continental 225 HP Engine, Hamilton Std. steel propeller. French gray fuselage, blue trim, silver wings. Lear radio receiver, landing lights, flares, turn and bank indicator, rate of climb indicator, Waltham clock, Heywood air starter, wind-driven generator. New wiring on motor. Ship just relicensed. New motor installed 7-17-34. Total time on motor, 206 hours, 25 minutes. Total time on airplane, 483 hours, 50 minutes.

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Houston, Texas

By Jim Hooten

With the coming of the summer months, student flying has shown a marked increase. Licenses have been issued recently to Max Jines and "Rip" Hansard (Transport) and L. J. Specht (Limited Commercial). Many of the students have almost reached the allotted fifty hours for Private and Limited Commercial licenses and the next month will find quite a few new pilots here on the field.

Air Activities Inc. has been unusually busy during the past month, both in the shops and in airplane sales. Dr. L. O. Wilkerson, of Bryan, has just traded his Fairchild "24" in on a 1935, flap equipped model. Dude Camden has just received delivery on his brand new '36 model Fairchild "24" and John Kirschke is now flying a "24"—his former ship, a States B-3, has been sold to a private flyer who has finally entered the owner field.

The Houston Junior Chamber of Commerce, with the co-operation of the Braniff Airways, are sponsors of free rides in the new Lockheed "Electra" passenger ships—in celebration of Aviation Week, which is in full swing here. During the latter part of the month our city will be honored by a visit from President Roosevelt, and much preparation is being made to entertain him highly during his short stay. Captain Eddie Rickenbacker, world-famous flyer, will arrive at the Municipal Airport Thursday of Aviation Week as guest of the Junior Chamber of Commerce.

Among the recent sales by Air Activities was included a Fairchild "24" to Mr. and Mrs. John Kirschke, who will use their ship for business and pleasure.

Houston Main Street Airport

By Emmett B. Cassady

The Cub recently sold to Mr. Oliver H. Stansel of Lovelady, Texas, has been replaced with a new one from the factory. Delivery was made on June 8th and the Cub has been in the air most of the time since arriving at its new home.

Student activities at the Main Street Airport have shown a very good increase lately and we anticipate a lively season. Among those preparing to take tests for licenses are: Bill Pennick, Jack Edwards, Ray Boynton, S. Steve Brown, "Doc" Fullerton, and Lawrence Roberti. The boys are all shooting at the spot, but we sometimes wonder if the spot has legs and moves all over the airport.

The cotton dutsers operated by Mr. J. L. Schroeder are concentrated around Bryan at the present time. The season is getting in full swing and the mechanics are putting the finishing touches on the Liberty Douglas BT1 duster which will be flown by Gardner Nagle.

We have all kinds of sessions at the Main Street Airport—bull sessions, rest sessions, night sessions and day sessions. We have day sessions when Pilot Lucius B. Day is here, and it all comes about because Mechanic Sessions lives at the airport and we believe he is guilty of everything connected with his name.

The Kinner Fleet is back in the air with a new cover job and Consolidated colors. The motor has been majored and it looks and flies like a new one.

Your correspondent, former operator of the Red River Flying Service at Gainesville, Texas, is now in charge of the flying operations at the Main Street Airport.

Kilgore, Texas

By Mrs. Roy Taylor

Elder's Field is the scene of bustling activity again with the advent of pleasant summer weather. Ace Corbin paid the port a two-day visit recently in his Tri-motor Stinson. He hauled students day and night.

Airport officials are to meet with the city commissioners on June 15 to discuss an improvement program for Elder's Field. Members of the aviation committee are to be present and it is expected that immediate activity will result.

An army aerial camera plane was here not long ago gathering airport data. They snapped several air view pictures of the airport.

The Inland Sport with which Fudge Taylor nonchalantly landed astride a jersey cow some few months ago, is back home again after complete repairs. Taylor Brothers expect to have their Challenger Robin flying again in a few days after they finish wing repairs necessitated by a sudden spring wind storm.

Deal Goodwin is giving the American Eagle Kinner power plant a top overhaul preparatory to doing passenger hauling at Rodessa oil field in Louisiana.

Rolly Inman paid a visit in the new OCS Beechcraft, which probably explains Rolley's wide grin these days. James B. Culver, local pilot, flew the Inland Sport to Abilene and reported a pleasant trip. Taylor Brothers are giving the J-6-9 out of their 6 place Stinson a major overhaul. Dr. Routon has had another Challenger installed in his Ken Royce. J. B. Nehls is putting a lot of time on his new Stinson. A recent visitor was Dr. C. J. Connor in his Lambert Monocoupe.

Lafayette, Louisiana

By J. D. Reed

Dudley Avery of Avery Island has been living in Lafayette for the past month as he has been flying Dr. Leonpacher to the cattle country along the Louisiana coast. Dud started the Doctor using an airplane for this work four years ago. Since that time, the Doctor has become the proud owner of a Kinner Bird which proves to be an ideal ship for the type flying done in the swamp country. Incidentally, Dr. Leonpacher has become an expert at aerial photography.

Leo Gros, airport manager and "flying firechief" can be seen daily caressing his OX Lincoln P. T. Leo greets all incoming pilots and is kept busy running back and forth from the field into town. When in Lafayette get Leo to tell you his famous story about Bud Broussard. It's worth a special trip to this port.

Lieut. Glynne Jones, local instructor and chief pilot of Lafayette Air Service, is majoring the Kinner motor of his Fleet. He is also rebuilding an OX Waco. Both jobs have slowed up his student work, but both ships will soon be back in the air.

Mrs. Fanny Leonpacher has been hard at work learning how to sit down in rice fields without hitting the levee. Fanny can be depended upon to talk up the flying game.

Frequent visitors included Red Gray, pilot for Continental Oil Company, and Eddie Ross in Loffland Brothers Beechcraft. Red comes in with a different ship each visit, since he has an Electra, a Beechcraft and a Vega to choose from.

Little Rock, Arkansas

By S. A. Franklin

Work on the National Guard Hangar and Administration Building at the Municipal Airport is progresing as fast as possible. The building is completed and all that remains to be done is the interior work. This is a WPA project and was started in January. The old hangar was raised six feet and the administration building constructed next to it. This building will house the offices and shop, also the store rooms.

An air show is planned at the Municipal Airport at Little

Rock July 2, 3, 4 and 5 under the auspices of the 154 Aero Squadron of the Arkansas National Guard. A large street carnival will show on the airport property, and a dance with a nationally known band will be held in the hangar on the night of the 4th. A number of well known pilots will participate with the usual air show activities. The committee in charge are: Capt. George Adams, Lieuts. Claude Holbert, John D. Howe, and S. A. Franklin. This show promises to be one of the biggest air events of the year in the state of Arkansas.

Marshall, Texas

By Bill Lane

J. O. Womack now holds the lease on the Marshall Municipal Airport. He has also purchased two Travelairs, both 4,000's one with a Challenger motor and one with a Wright J-6-5.

Inspector Lake Littlejohn was in recently and issued a renewal for the OX-5 Travelair belonging to R. H. Talley. License was also given Douglas Ruthven's Waco. Ches Graham from Longview flew over and received his private, taking his test in his Rearwin.

V. G. "Balbo" Provenza, Rangerette Guard deluxe, and your correspondent, made a trip over to Caddo Lake on the 3rd to inspect the writer's clubhouse from the air. D. C. McPhereson, now stationed at Barksdale Field as radio operator, paid us a visit to get in some more time on the Aeronca.

Present plans would establish a taxi service and telephone for the municipal field. These two items have long been needed at this port for visiting pilots.

Pampa, Texas

By Jean Douglass

Pampa's Air Show, held June 2nd, was a success. It was sponsored by the Panhandle Centennial Celebration Entertainment Committee and the Texas Eagles Flying Club, local aviation body. Five or six thousand paid customers wtinessed the various acts, and the weather man did more than his share by donating a perfect flying day.

One of the outstanding incidents of the afternoon was the brief visit of a TWA Douglas Airliner, which circled the field during the meet. Highlights of the show were Lee Miles' stunt flying, the "shirt tail" race and the Old Woman stunt given by Ray Shifflett. Parachute jumpers were conspicuously absent, with no contender for the $50.00 prize offered. Department of Commerce inspector Meadows was present and his advice, assistance and interest was highly appreciated by the sponsors.

In the prize money, Lee Miles won the bulk, taking $205.00 with five events; L. T. Dutcher, $85.00; Ray Shifflett $55.00; Frank Shaw $25.00; Clent Breedlove $25.00; Jerry Sass $25.00; George Christopher 22.00; and A. F. Holt 10.00. Miles won the 25-mile open race in his Warner Cessna C-34, clicking the course off in 11 minutes, 45 seconds.

San Antonio, Texas

By T. D. Higgins

Carl Wallrath, of United Aero Corporation, Winburn Field, has ferried two new Aeronca airplanes from the factory at Cincinnati, Ohio. They will be used principally for training. However, charter and demonstration trips will also be made in them. The first was one of the popular high-wing Aeroncas and the other the new low wing, which has created much interest for its beauty and appeal to fast economical cross-country cruising.

Plans to stage a light plane air tour of towns with airports within a radius of 250 miles of San Antonio, are being considered here. The object is to create interest in economical flying.

The pilots on the tour will be noncommercial and the planes will be limited to classification No. 1, those ships under 1,000 pounds gross weight. It is hoped to get from five to 15 ships in the air and to start the tour next month.

Minor awards for speed, economy and other points probably will be given. Anyone interested may communicate with the conductor of this column, who will turn the information over to the proper persons.

Efforts under way to get approval to have three United States Weather Bureau men placed on duty at Winburn Field, the municipal airport, to take airways observations.

When the new administration building is completed at Winburn Field and the proper radio equipment is installed, the five KCAW operators are to be moved to the municipal airport where they will operate the station on the Corpus Christi highway by remote control.

Sarasota, Florida

By Richard E. Lindsay

Sarasota's winter crop of migratory birdmen have all flown back to their northern homes, leaving this city rather flat aeronautically. Just prior to his departure for Falmouth, Mass., Guy Ham sold his Rearwin Sportster to the Tampa Aero Club, and drove to the Cape with Mrs. Ham instead of flying as he had originally planned. They expect to return early in the fall with another ship. Truman Fassett, Sarasota's artist-aeronaut, had his Rearwin flown

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north for him by Nelson Jones of this city, while he and Mrs. Fasett drove through to their summer home on the Cape. David Lindsay of Marion, Indiana, left Sarasota bright and early one beautiful Florida morning and arrived at his Hoosier city in slightly more than 8 hours flying time. David Walker of Robertson, Misouri, made the return trip of his last commuting flight for the season. Both the latter pilots are flying Waco cabin jobs.

N. A. A. recently appointed Richard E. Lindsey official airport manager at this city's municipal airport.

St. Louis, Missouri

By Howard Barman

Ralph Page was appointed superintendent of the Lambert-St. Louis Airport on May 15. He succeeds Milton D. Girton, veteran air pilot, who was dismised by the St. Louis director of public welfare, who has jurisdiction over this municipally owned airport.

Girton's dismisal followed a controversy between the airport manager and Director Joseph M. Darst over the qualifications of a radio dispatcher who had been sent to the airport by the city official to be trained. Field Manager Girton asked that the Darst appointee be relieved of further training following a two months trial and this led to an open disagreement between the two men. For two months following the discharge of the man whom Girton said could not be trained for the work, the field manager served as day dispatcher in the control tower.

Page was assistant manager of Lambert Airport for about two years under Girton. He is a cavalry officer and was formerly an automobile dealer.

The work of directing the planes at the field has been divided into three eight-hour shifts. Capt. Frederick A. Johnson, retired army aviator, formerly attached to Scott Field, in Illinois, and Lawrence Jewell, former employe of an airplane company at Lambert Field, are the new dispatchers. A. W. League is chief dispatcher.

The new TWA pasenger office in St. Louis was formally opened on June 1. It is at 401 North Twelfth Boulevard.

The Robertson Aviation School, Robertson, Mo., has completed a new classroom, 15x12 feet, in the Mechanics School building. The room is fully equipped with student arm chairs and blackboards.

Seven new students were enrolled in March and three in April, making a total of 25 registered in the school, according to Joseph Wecker, business manager.

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Houston Municipal Airport

Houston, Texas

Tulsa, Oklahoma

By R. G. Creager

Early this month surfacing was completed on the new 3, 160-foot, north-and-south runway for the Tulsa Municipal Airport, but it only partly completes the picture in the minds of airport officials.

The runway is 100 feet wide, topped with asphalt emulsion and runs from boundary to boundary. It is provided with tile drainage and otherwise measures up to the best specifications of WPA construction, according to Major E. M. Haight of New Orleans, regional airport supervisor, who inspected the new runway just before it was completed.

And although the runway is only part of what it was hoped to do here, Charles W. Short, airport manager, is proud of the acquisition and those who must use the field welcome its completion.

The original plans called also for a 3,500-foot northeast-southwest runway and it was hoped that it might be possible to surface 2,500 feet of a 2,800-foot east-west runway. But that was before the $75,000 appropriation was reduced to $40,000.

However, as Manager Short points out, these additions can wait because the north-south runway was most necessary. Prevailing winds at the Tulsa port are south and often lazy. When it is necesary to use the east-west runway, winds from either direction are generally rather brisk.

Late May saw the completion of tests on the four-passenger, cabin sesquiplane designed and built by Willis Brown and R. E. Young. Brown designed the ship which some years ago interested W. G. Skelly, wealthly oil man, in aviation to the extent that he financed a corporation and constructed the plant of the Spartan Aircraft Corporation. Brown later withdrew from Spartan. Young is a former Waco man. They have organized the Brown-Young Aircraft Company which they say will be financed by Tulsa capital for commercial production.

After the test flights, Brown announced this performance data: top speed, 180 mph; landing speed, 52 mph; fuel consumption, one gallon to 12½ miles.

The ship is powered with a 225 hp Jacobs radial motor. Brown points out that it has the widest landing gear tread of any plane its size—9 feet. It has a retractable landing gear.

Wichita, Kansas

By G. C. Richardson

A demonstration of the efficiency of Mid-Victorian air mail came here on May 17th when "Black Flight," a racing pigeon belonging to Victor Loebsack of this city, won over all his competitors by making the flight from Oklahoma City to Wichita at an average speed of 45 miles per hour. Black Flight won over six other contestants in the flight of 153 air line miles.

(Continued on Page 30)

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New Equipment

(Continued from Page 19)

the complicated computations by conventional methods, has been developed by the Fairchild Aerial Camera Corporation. Invented by Fred C. Hagner of San Antonio, Texas, on the basis of personal experience in navigation, the device can secure a "fix" in less than two minutes.

The primary purpose of the Hagner "slide-rule" sextant is to eliminate much of the complicated trigonometric computation necessary in the usual methods of determining a "fix" and in the solution of the spherical triangle.

Its simplicity of operation and accuracy, however, have greatly increased its field of application and it can be used for numerous purposes. Some of its other applications are:

1. Determines a line of position.
2. Determines the agular altitude of any heavenly body.
3. Measures angles between any two heavenly bodies.
4. Locates true North.
5. Corrects compass for both deviation and magnetic declination.
6. Gives initial course.
7. Gives distance in nautical miles between two places in great circle course.
8. Gives angle of artillery fire.

The Hagner Position Finder is a small, compact instrument of high precision, which may be considered a miniature celestial sphere. It consists principally of a horizon plane, declination arc, latitude arc, altitude arc and hour angle circle. The horizon plane carries the altitude arc, azimuth circle and a spherical level bubble.

In the center of the level bubble mounting is located a one-eighth inch diameter circle which is the geometrical center of the instrument and corresponds to the observer's position on the Earth when making an observation on a celestial body. The graduated azimuth circle rotates inside of the horizon circle which, when the instrument is properly set, gives the azimuth of any heavenly body sighted.

The declination arc is graduated in degrees and pivoted at the North and South poles of the finder frame. Thus, when the declination of the observed body is set on this circle, the motion of the body across the heavens can be followed by rotating this arc. By reading the hour angle circle which indicates the angular position, the exact longitude can be determined.

The latitude arc is a part of the horizon plane and is at all times perpendicular to it. When proper settings are made, the exact latitude of the place of observation can be read directly from the gradauted arc. At noon when the sun is at the zenith, the plane of the declination arc and the plane of the latitude arc are the same plane.

The altitude arc is mounted on the horizon circle and in a plane perpendicular to it. When the position finder is properly sighted, the observed altitude of any body can be read directly.

To use the Hagner instrument the observer needs only the Nautical Almanac and a clock giving Greenwich Civil Time. By virtue of its compactness and simplicity of operation the Hagner Position Finder takes the "mystery" out of navigation. It may be held in one hand during an observation, leaving the other free to make adusjtments, or it may be placed on a gimbal for operation.

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Ports of Call

(Continued from Page 28)

To advertise the Kansas Diamond Jubilee Exposition to be held here from October 7 to 17, governor Alf M. Landon flew to this city in a TWA skyliner piloted by D. W. Tomlinson, senior pilot of the airline. Arriving on the afternoon of May 18th, Landon was escorted to an ox team and covered wagon which he drove out to the airliner and there delivered letters of welcome which were sent to the governors of the 47 other states. A short speech made by Landon was broadcast over a national network and the ceremonials were photographed by news reel men.

L. A. Faunce, salesmanager of the Warner Aircraft Corporation of Detroit, took delivery May 19th of a new opalescent green colored Cessna monoplane. The ship is beautifully finished and Faunce was highly pleased with its performance. He will use it for work connected with the Warner company.

Carl Winstead, widely known local flier, will also take delivery of a new Cessna C34. Winstead was recently awarded the contract for air mass sounding weather flights at Oklahoma City by the U. S. Weather Bureau and will take over this assignment July 1st. Carl has had previous experience at this type of high altitude flying, having flown the weather at Oklahoma City for a previous contractor over a year ago. At that time he made a dramatic landing from overcast when his engine went to pieces at about 5,000 feet at 2:00 A. M.

Most spectacular Beech Aircraft Company news the past month concerns the shipping of a de luxe model B17R to Europe on board the airship Von Hindenberg. Accompanying the airplane on board the giant craft were James Haizlip, his wife and fifteen year old son. Haizlip will base at Oslo, Norway, and from that point will demonstrate the craft in every country in continental Europe. Haizlip has gained an enviable reputation in this country as a speed pilot.

To place the plane on board the Zeppelin it was only necessay to retract the landing gear and remove the wings and the loading operation was completed in only a few hours. Haizlip was short of time and haste was necessary to enable him to fulfill appointments in Europe. Thus the two-day crossing over the Atlantic saved him several days. The expense of this unusual form of transportation was not much greater than it would have been on board a liner due to the fact heavy crating was not necessary as well as attendant costs.

Last month Beech sales also include a C17R to the OCS Manufacturing Company of Coffeyville, Kansas, a C17R to Manning & Martin, Inc., of Denver, Colorado, and another of the same model to Jack Burris of Dallas, Texas. Mouton & Six, San Francisco dealer, also took delivery on a new C17B.

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